

Gönderim Tarihi: 07.12.2023

Kabul Tarihi: 05.03.2024

KAS DİSMORFİSİ MERCEK ALTINDA: SINIFLANDIRMADAN YENİ İLİŞKİLENDİRMELERE

Muscle Dysmorphia in the Spotlight; from Classification to New Associations

Metin ÇINAROĞLU

Dr. Öğr. Üyesi; İstanbul Nişantaşı Üniversitesi
İktisadi, İdari ve Sosyal Bilimler Fakültesi
Psikoloji Bölümü

metin.cinaroglu@nisantasi.edu.tr

ORCID ID: 0000-0001-6342-3949

Çalışmanın Türü: Araştırma

Öz

In recent years, the realm of mental health has seen the rising prominence of muscle dysmorphia, a condition marked by an individual's excessive and sometimes distressing fixation on their perceived lack of muscular development. This fixation often overshadows the individual's actual physical appearance and can significantly interfere with their daily life and well-being. Despite the increasing recognition of its prevalence, muscle dysmorphia's exact place within the broader spectrum of psychological disorders remains debated among scholars. It shares noticeable traits with conditions like body dysmorphic disorder, eating disorders, and obsessive-compulsive disorders. Nevertheless, its unique characteristics warrant distinct attention and investigation. This analytical review delves deep into the latest research efforts that aim to associate new terms and understandings with muscle dysmorphia. With the evolving landscape of mental health discourse, there's an integration of broader concepts like body image perceptions, societal objectification, and elements of narcissism into the interpretation of muscle dysmorphia. These emerging viewpoints not only enrich the debate around its classification but also enhance our understanding of the diverse facets of this condition. While there's substantial empirical data linking muscle dysmorphia with body dysmorphic and eating disorders, its connections to obsessive-compulsive and certain personality disorders need further robust exploration. To truly grasp the intricacies and the multifaceted relationships of muscle dysmorphia, there's an urgent call for rigorous randomized clinical controlled trials that can shed light on this evolving concern in mental health.

Keywords: / Muscle dysmorphia, Body dysmorphic disorder, Objectification, Narcissism, Eating disorders

Abstract

Son yıllarda, zihinsel sağlık alanında, bireyin algılanan kas gelişimindeki yetersizliği üzerine aşırı ve bazen rahatsız edici bir şekilde odaklanmasıyla tanımlanan kas dismorfi hastalığının yükselen bir önemi olduğunu görmekteyiz. Bu takıntı, bireyin gerçek fiziksel görünümünü genellikle gölgede bırakmakta ve günlük yaşama önemli ölçüde negatif etki edebilmektedir. Bu ruh sağlığı sorunu giderek yaygınlaşmasına ve artan tanınırlığına rağmen, kas dismorfinin psikolojik bozukluklar geniş spektrumu içindeki tam yeri, bilim insanları arasında tartışma konusudur. Beden dismorfik bozukluk, yeme bozuklukları ve obsesif-kompulsif bozukluklar gibi ruhsal hastalıklarla belirgin özellikler paylaşmaktadır. Bununla birlikte, benzersiz özellikleri, ayrıca dikkat ve araştırmayı hak etmektedir. Bu analitik inceleme, kas dismorfi ile yeni terimler ve anlayışlar arasında ilişki kurmayı

amaçlayan son araştırma çabalarını derinlemesine tartışmaktadır. Çalışmada, zihinsel sağlık söyleminin evrilen manzarasıyla, beden imajı algıları, toplumsal dayatılan imgeler ve narsisizm unsurları gibi daha geniş kavramların kas dismorfi yorumuna entegrasyonu söz konusudur. Bu ortaya çıkan görüşler, sınıflandırma etrafındaki tartışmayı zenginleştirmekle kalmıyor, aynı zamanda bu durumun çeşitli yönlerini anlamamızı da sağlıyor. Kas dismorfi ile beden dismorfik ve yeme bozuklukları arasında önemli miktarda ampirik veri bulunsa da, obsesif-kompulsif ve belirli kişilik bozukluklarına olan bağlantıları daha etkili bir şekilde araştırmaya ihtiyaç duyulmaktadır. Kas dismorfinin ayrıntılarına ve çok yönlü ilişkilerine bilimsel kanıtlarla hakim olmak için, bu ruh sağlığı konusundaki evrilen endişeyi aydınlatabilecek randomize klinik kontrollü araştırmalara olan ihtiyaç elzemdir.

Anahtar Kelimeler: Kas dismorfisi, Beden dismorfik bozukluk, Nesneleştirme, Narsisizm, Yeme bozuklukları.

1. INTRODUCTION

Muscle dysmorphia, once a niche topic in the world of mental health, has swiftly emerged as a significant concern in contemporary society. As the relentless pursuit of physical perfection intensifies, propelled by social media and societal expectations, an increasing number of individuals find themselves tormented by the belief that their musculature is inadequate, irrespective of how developed it might truly be. This condition, while bearing resemblance to other psychological disorders, stands out due to its distinct nuances and its entanglement with the modern era's emphasis on appearance. While experts have yet to reach a consensus on its exact classification, the implications of muscle dysmorphia are undeniable. This paper aims to shed light on the complexities of muscle dysmorphia, its classification, and its ties to other psychological conditions. Through a meticulous examination of recent research, we hope to provide a clearer understanding of this emerging concern, paving the way for better diagnosis, prevention, and treatment methods.

1.1. Why is it important to do this review?

This review holds paramount importance in the realm of mental health research due to the intricate nature of Muscle Dysmorphia (MD) and its associations with various disorders, including Body Dysmorphic Disorder (BDD), Eating Disorders (ED), Obsessive Compulsive Disorder (OCD), and Personality Disorders (PD). By delving into these multifaceted connections, this study aims to provide a comprehensive understanding of MD that spans across diverse fields such as clinical psychology, psychiatry, biology, physiology, and sociology. The significance of this comprehensive exploration lies in its potential to refine diagnostic criteria, enabling healthcare professionals to make more accurate assessments. Moreover, this detailed understanding is instrumental in developing nuanced and tailored

treatment approaches, addressing not only the physical symptoms but also the psychological and sociological factors at play. Additionally, this review introduces novel concepts such as "objectification" and "narcissism," offering fresh perspectives that can lead to innovative research avenues and therapeutic interventions. By shedding light on these intricate relationships, this review contributes significantly to the evolving discourse on MD, fostering awareness, understanding, and empathy in both clinical and societal contexts.

1.2. Muscle dysmorphia and Anabolic, androgenic steroid abuse

Muscle dysmorphia (Muscle dysmorphia is a psychological disorder characterized by an obsessive preoccupation with the idea that one's body is not sufficiently muscular or lean) and the abuse of Anabolic Androgenic Steroids (AAS) are intrinsically linked, given their impact on the human body and behaviour. AAS, primarily testosterone and its synthetic derivatives, function to increase protein synthesis and amplify male secondary sex characteristics. However, chronic AAS use is affiliated with a plethora of health issues ranging from hepatic to neurologic disorders, and increased mortality rates (Pope, H., Kanayama & Hudson, 2012; Kanayama, H.G., Hudson & Pope, 2008). The dangers of AAS abuse, such as cardiomyopathy, aggression, and significant mood disorders, are well documented (Thiblin et al., 2015; Kanayama, Hudson, Pope & H., 2008; Pope et al., 2014). In the United States of America (USA), it's estimated that nearly 2.9% to 4% of the general population has used AAS at some point in their lives, a figure which startlingly overshadows heroin abuse rates (Pope, H.G., Kanayama, J., & Hudson 2014). An estimated 23% to 57% of AAS users are believed to develop an AAS dependency (Kanayama, Pope, H., Hudson & J., 2001).

The motivations driving AAS use notably differ from other substances. For AAS, the primary incentives are enhancing physical appearance and performance rather than achieving intoxication (Parkinson & Evans, 2006; Cohen et al., 2007). The main motivations include improving muscle mass, augmenting strength, and achieving an ideal body image, as evidenced by studies on men who use AAS (Ip, et al., 2011; Cohen et al., 2007). The negative self-perception of one's body is a major risk factor for AAS abuse (Riciardelli & McCabe, 2004; Kanayama et al., 2006; Cafri et al., 2006; Van den Berg et al., 2007; Field et al., 2014). Moreover, motivations such as achieving greater muscularity or reducing body fat are prevalent among users (Cafri et al., 2006; Jampel et al., 2016; Cohen et al., 2007; Ip et al., 2011).

Several theories in social psychology suggest that men might turn to AAS due to an internalized disruption of body image ideals (Parent & Moradi, 2011; McCreary et al., 2007). This internalization can cause individuals to feel ashamed, potentially leading them to eating disorders or obsessive exercising, culminating in muscle dysmorphia. Research with male bodybuilders and weightlifters has shown a direct correlation between increased symptoms of muscle dysmorphia, eating disorders, and AAS abuse (Pope et al., 2012). This intricate relationship between body image perception, muscle dysmorphia, and AAS abuse underscores the critical need for awareness and interventions.

1.3. Classification of MD

Muscle dysmorphia (MD) poses a significant challenge in diagnosis due to its complex interplay with various psychological disorders. Initially described as a condition where individuals perceive themselves as undersized or frail despite having a normal or even muscular physique (Pope et al., 2005), MD's repercussions include heightened rates of depression and suicidal tendencies, often aggravated by the use of Performance Enhancing Drugs (PEDs) like Anabolic Androgenic Steroids (AAS) (Mosley, 2009; Pope et al., 2005). The motivations behind PED use extend beyond body image concerns and can encompass desires to augment libido, sex drive, and overall psychological well-being (Cohen et al., 2007).

The classification of MD remains a subject of debate among researchers. While some propose it as part of BDD (Hudson and Pope, 1993), questions persist about whether it fits under BDD, OCD, or ED categories (Maida & Armstrong, 2005; Jones & Morgan, 2010; Murray et al., 2010; Pope et al., 2005; Pope et al., 1997). The American Psychiatric Association (APA, 2013) defines BDD as a disorder characterized by an obsession with perceived flaws, leading to functional impairments. MD has been used as a specifier under BDD in DSM-5, emphasizing disruptions in social and professional life due to strict diets, high-volume training, anxiety-driven behaviors related to body visibility, and persistent engagement in these behaviors despite awareness of their negative consequences.

Additionally, MD's connection with strict diet, clean nutrition, and rigorous exercise resembles aspects of EDs like anorexia nervosa and bulimia nervosa (Olivardia et al., 1995; Mangweth et al., 2001). However, MD primarily focuses on achieving an idealized muscular physique rather than weight loss. While some researchers suggest classifying MD as an addiction due to behavioral patterns, robust evidence supporting this

categorization is lacking (Demetrovics & Griffiths, 2012). The intricate nature of MD, entwined with body image concerns, psychological well-being, and obsessive behaviors, underscores the complexity of its classification and emphasizes the need for ongoing research in this field.

1.4. MD and Body Image

BD is a multidimensional construct encompassing perceptions, thoughts, and emotions about one's physical appearance. Within this framework, MD represents a distinctive form of body image disorder, characterized by an overwhelming fixation on muscularity. Individuals grappling with MD incessantly fear being too thin or inadequately muscular, compelling them to engage in extreme and often detrimental behaviors to achieve their perceived ideal physique. This relentless pursuit manifests in stringent dietary regimens, high-volume training sessions, and anxiety-driven behaviors concerning body visibility. The intricate relationship between MD and body image becomes evident in the profound disruptions it inflicts upon individuals' lives. These disruptions extend beyond the physical realm, permeating their social interactions, professional engagements, and overall psychological well-being. The persistency of these behaviors, despite the individuals' awareness of their adverse consequences, underscores the intricate interplay between body perception and mental health, highlighting the urgent need for comprehensive research and nuanced understanding in this domain.

1.5. MD and Objectification

The concept of objectification has become a vital perspective in deciphering the motives and psychological intricacies of MD in men. Initially applied to analyze female body image concerns, objectification theory has found profound relevance in the context of male body image issues, especially concerning MD. Objectification, as elucidated by Roberts and Frederickson (1997), involves the interpretation of idealized body images and their sexual objectification, linking them to eating disorders and body perception problems (Moradi, Dirks, & Matteson, 2005; Frederickson et al., 1998; Calogero, Davis, & Thompson, 2005).

Research has delved deeply into how societal ideals of men's physique, perpetuated by media and social interactions, are intertwined with MD. Studies conducted by Morrison, Morrison, and Hopkins (2003) and Leit, Gray, and Pope (2002) have revealed positive correlations between societal ideals of male physique and MD. Objectification theory, as explored by Strelan and Hargreaves (2005), has been instrumental in understanding

the relationship between workout motives and body esteem. Their findings indicated a negative correlation between body image and body esteem with excessive workout and proper diet among individuals dealing with MD.

Furthermore, objectification theory has illuminated the link between MD, eating disorders, and depression. Calogero (2009) established connections between objectification experiences, body image concerns, and eating disorders. Tiggemann and Kuring (2004) similarly found associations between objectification and depression, emphasizing the detrimental impact of objectifying experiences across diverse ethnicities and genders (Hebl, King, & Lin, 2004).

The influence of media in shaping body ideals cannot be overstated. Extensive research has explored the intricate relationship between media, body ideals, and their consequences, encompassing MD, BDD, and EDs. Studies by Grabe et al. (2008), Boroughs, Cafri, and Thompson (2005), and Schooler and Ward (2006) have delved into the impact of media-induced body ideals on individuals, leading to heightened anxiety and depression when these ideals remain unattainable. Comparisons with idealized images result in negative body esteem, significantly contributing to problematic situations such as MD, BDD, and EDs (Frith & Gleeson, 2004; Grieve et al., 2005; Ridgeway & Tylka, 2005; Leit, Pope, & Gray, 2001; Lorenzen, Grieve, & Thomas, 2004; Morrison et al., 2003).

By acknowledging the harmful impact of objectification experiences and media-induced body ideals, interventions can be crafted to mitigate the negative consequences, fostering healthier body image perceptions and enhanced psychological well-being among individuals vulnerable to MD and related disorders.

1.6. MD and Obsessive-Compulsive Behavior

MD and OCB represent two distinct yet intertwined psychological phenomena. MD, characterized by an obsessive preoccupation with one's perceived lack of muscularity despite a well-developed physique, shares common ground with OCB in its manifestation of repetitive, intrusive, and distressing thoughts and behaviors. This intersection between MD and OCB reveals a complex interplay, shedding light on the psychological intricacies underlying both conditions.

At its core, MD involves persistent and distressing thoughts related to body image, leading individuals to engage in compulsive behaviors such as excessive exercise, strict dietary regimens, and the use of performance-

enhancing substances. These behaviors, akin to rituals in OCB, are performed in response to obsessive concerns about body size and shape. Individuals with MD often spend significant time fixating on perceived flaws, engaging in rituals to alleviate distress, mirroring the cyclical pattern observed in OCB.

Furthermore, the obsessive nature of MD often leads to ritualized behaviors that individuals feel compelled to perform to mitigate anxiety and insecurity. This mirrors the ritualistic actions undertaken by individuals with OCB to reduce distress caused by intrusive thoughts. The repetitive nature of these behaviors, whether excessive exercising or compulsive washing, points to a shared underlying mechanism involving anxiety regulation.

Moreover, individuals with MD may exhibit perfectionism, a trait commonly associated with OCB. The relentless pursuit of an idealized muscular physique in MD aligns with the perfectionistic tendencies observed in individuals with OCB, where unrealistic standards drive compulsive actions. This overlap in perfectionism intensifies the connection between MD and OCB, amplifying the psychological distress experienced by individuals struggling with these conditions.

The intricate relationship between MD and OCB emphasizes the importance of comprehensive assessment and tailored interventions. Mental health professionals must recognize the coexistence of these disorders, addressing both the body image concerns in MD and the obsessive-compulsive patterns in OCB. Integrated therapeutic approaches, combining cognitive-behavioral techniques, exposure therapy, and mindfulness-based interventions, can provide individuals with the necessary tools to manage intrusive thoughts, compulsive behaviors, and body image disturbances.

In summary, the convergence of Muscle Dysmorphia and Obsessive-Compulsive Behavior illuminates a complex interplay rooted in obsessive thoughts, compulsive rituals, and perfectionistic tendencies. Understanding this intersection not only enhances our grasp of these disorders but also informs the development of targeted interventions, fostering holistic well-being for individuals navigating the challenges of MD and OCB.

1.7. MD and Narcissism

MD and its intertwining with narcissism presents a compelling avenue for academic inquiry. At the crux of this investigation lies the manner in which interpersonal nuances of narcissism drive or influence the motives behind MD. The pursuit of a perfect physique, deeply embedded in

the psyche of those with MD, often intersects with narcissistic tendencies, more notably the grandiose and vulnerable facets (Dryer et al., 2016).

Narcissism, not merely a personality trait but an interpersonal stance, governs the self-perceptions and attitudes of individuals regarding their bodies and the symptoms of MD they manifest. Such narcissistic attitudes might radiate with magnificence or be tainted with hostility (Miller & Campbell, 2008). The literature on the nexus between MD and narcissism has been a tapestry of varying outcomes. While some research accentuates the positive correlations between MD and narcissism, specifically emphasizing the role of vulnerable narcissism, others like the findings of Collis et al. (2016) contend that there is an absence of any significant linkage, which could be attributed to the differential methodologies employed in assessing narcissism.

The dichotomy of grandiose and vulnerable narcissism offers insightful perspectives in the realm of MD. The former, grandiose narcissism, paints a portrait of an individual steeped in feelings of dominance and an inflated self-worth, epitomized by the belief, "I stand above the rest." On the other hand, vulnerable narcissism, characterized by fragile self-worth and a predisposition to negative emotions, often leads individuals down the path of comparison, feeling that "others possess a muscular edge over me" (Miller et al., 2011).

The shadows of vulnerable narcissism also extend to other disorders. A notable example is Bulimia nervosa, characterized by a cycle of binge eating followed by purging. There's a resonance between the behavioral patterns seen in MD, marked by binge eating and subsequent purging, and the manifestations of vulnerable narcissism, weaving a complex narrative of body image, narcissism, and disordered eating (Maples et al., 2011; Murray et al., 2012).

Delving deep into the intricate relationship between MD and narcissism, it becomes evident that the journey towards understanding MD is as much about unraveling the body's physical obsessions as it is about understanding the underlying psychological and narcissistic currents. Recognizing these layers is instrumental in crafting therapeutic interventions tailored to the unique challenges faced by those grappling with MD.

1.8. Future Research Directions

As this review has elucidated, MD is a multifaceted condition that intersects with a range of psychological constructs, including but not limited to BDD, ED, OCD, PD, the phenomena of objectification and narcissism, and the

abuse of AAS. Each of these constructs provides a unique lens through which MD can be understood, studied, and treated. However, the integration of these diverse perspectives into a cohesive framework remains a challenge and an opportunity for future research.

The intricate web of relationships between MD and these constructs suggests that MD cannot be fully comprehended in isolation. Future studies should aim to develop integrative models that consider the psychological, physiological, sociological, and cultural dimensions of MD. Such models could offer a more comprehensive understanding of the etiology, progression, and manifestation of MD, facilitating the development of more effective, holistic treatment approaches.

Moreover, the interplay between MD and constructs such as narcissism and objectification, especially in the context of societal and media influences, warrants further exploration. Research could investigate how cultural shifts and technological advancements influence the prevalence and expression of MD and related disorders. Additionally, longitudinal studies examining the progression of MD in relation to changes in societal norms and technology use could provide valuable insights into the condition's dynamics.

Investigating the potential for cross-disorder interventions that address common underlying factors such as body dissatisfaction, perfectionism, and compulsive behaviors could also be fruitful. For example, strategies effective in treating aspects of ED or OCD might be adapted for individuals with MD, emphasizing the need for interdisciplinary approaches in research and treatment.

2. CONCLUSION

MD has steadily carved a niche in academic research, igniting discussions around its definition, origins, and underlying determinants. This intricate disorder, manifesting across diverse spheres such as physical, psychological, social, and occupational, has been challenging to categorize definitively. The academic landscape is divided, with some scholars positioning MD alongside eating disorders, while others correlate it with substance abuse patterns, especially concerning ASS-PED consumption. Further complicating the classification, some researchers align MD with BDD or obsessive-compulsive tendencies.

The aim of this comprehensive review was to illuminate the multifarious concepts that define and characterize MD, focusing primarily on its categorization and inherent traits. The breadth and depth of MD are increasingly evident, as its ties with phenomena such as ASS addiction, reverse bulimia nervosa, and the societal and digital pressure to attain the 'perfect physique' come to the fore. The interplay between vulnerable narcissism and MD underscores the psychological facets of the disorder.

Theoretical models, such as Griffiths' body image framework and Roberts and Frederickson's objectification theory, coupled with examinations of narcissistic traits, have broadened the discourse. These paradigms offer profound insights into MD's categorization and distinct attributes, suggesting an evolutionary understanding of the disorder with facets still under the veil.

To encapsulate, MD emerges as a complex, multidimensional entity demanding thorough investigation. The continual evolution of our comprehension of MD underscores the pressing need for meticulous, clinically controlled studies, especially pertaining to its links with obsessive-compulsive and personality disorders. It's through this rigorous academic pursuit that we can truly fathom MD's nuances, paving the way for comprehensive therapeutic strategies benefiting those impacted.

3. SUMMARY

MD is an increasingly recognized mental health concern characterized by an individual's preoccupation with the notion that their muscle size is inadequate. This condition is a manifestation of body image distortion and often overlaps with other psychological issues such as BDD, ED, and OCD.

The issue of MD is intricately linked with the misuse of AAS, which are often abused not for the purpose of intoxication but rather to enhance one's physical appearance. This misuse can lead to serious health complications, including dependency. The motivations behind AAS use are frequently rooted in the desire to increase muscle mass and achieve a particular body image that is often idealized.

Classifying MD is a subject of debate due to its similarities with BDD, ED, and OCD. APA has categorized MD under the umbrella of BDD in the DSM-5, emphasizing the significant disruption it causes in social and occupational settings.

MD is a severe body image disorder where affected individuals often engage in extreme and potentially harmful behaviors in the pursuit of an idealized body shape. This suggests a profound underlying issue with self-perception and body image.

The societal phenomenon of objectification, particularly pertaining to males, is vital in understanding MD. This concept draws a connection between societal standards, media representations of the male body, and the resulting body image disturbances.

Furthermore, MD displays characteristics akin to OCB, as evidenced by persistent thoughts and actions directed towards attaining a specific physical form. This resemblance points to the necessity of an integrated treatment approach that addresses these compulsive behaviors.

The association of MD with vulnerable narcissism is also noteworthy, providing insight into the psychological motivations fueling the disorder. Narcissistic traits may intensify the severity of MD, thereby influencing the approach to treatment and management.

In conclusion, MD is a complex, multifaceted condition that demands further exploration, particularly in its classification and the interrelations with other psychological disorders. A thorough understanding of its various dimensions is essential for devising effective interventions and therapies that can address both the psychological and behavioral aspects of this disorder.

4. REFERENCES

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders – Text revision* (Fifth ed.). Washington, DC: American Psychiatric Association.
- Boroughs, M., Cafri, G. & Thompson, J. K. (2005). Male body depilation: Prevalence and associated features of body hair removal. *Sex Roles*, 52, 637–644.
- Cafri, G., Van den Berg, P. & Thompson, J.K., (2006). Pursuit of muscularity in adolescent boys: relations among biopsychosocial variables and clinical outcomes. *J. Clin. Child. Adolesc. Psychol.* 35, 283–291, http://dx.doi.org/10.1207/s15374424jccp3502_12.
- Calogero, R. M. (2009). Objectification processes and disordered eating in British women and men. *Journal of Health Psychology*, 14, 394–402.
- Calogero, R. M., Davis, W. N. & Thompson, J. K. (2005). The role of self-objectification in the experience of women with eating disorders. *Sex Roles*, 52, 43–50.
- Cohen, J., Cohen, P., West, S.G. & Aiken, L.S. (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, third edition. Routledge, New York.
- Cohen, J., Collins, R., Darkes, J. & Gwartney, D. (2007). A league of their own: Demographics, motivations and patterns of use of 1,955 male adult non-medical anabolic steroid users in the United States. *Journal of the International Society of Sports Nutrition*, 4, 12–26.

- Cohen, J., Collins, R., Darkes, J. & Gwartney, D. (2007). A league of their own: demographics, motivations and patterns of use of 1, 955 male adult non-medical anabolic steroid users in the United States. *J. Int. Soc. Sports Nutr.* 4, 12, <http://dx.doi.org/10.1186/1550-2783-4-12>.
- Collis, N., Lewis, V. & Crisp, D. (2016). When is buff enough? The effect of body attitudes and narcissistic traits on muscle dysmorphia. *Journal of Men's Studies*, 24(2), 213–225. <https://doi.org/10.1177/1060826516641097>
- Dryer, R., Farr, M., Hiramatsu, I. & Quinton, S. (2016). The role of sociocultural influences on symptoms of muscle dysmorphia and eating disorders in men, and the mediating effects of perfectionism. *Behavioral Medicine*, 42(3), 174–182. <https://doi.org/10.1080/08964289.2015.1122570>
- Frederickson, B. L. & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, 21, 173–206.
- Frederickson, B. L., Roberts, T. A., Noll, S. M., Quinn, D. M. & Twenge, J. M. (1998). That swimsuit becomes you: Sex differences in self-objectification, restrained eating, and math performance. *Journal of Personality and Social Psychology*, 75, 269–294.
- Frith, H. & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men and Masculinity*, 5, 40–48.
- Grabe, S., Ward, L. M. & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*, 143, 460–476.
- Grieve, F. G., Truba, N. & Bowersox, S. (2009). Etiology, assessment, and treatment of muscle dysmorphia. *Journal of Cognitive Psychotherapy*. 23, 306–314.
- Grieve, F., Newton, C., Kelley, L., Miller, R. & Kerr, N. (2005). The preferred male body shapes of college men and women. *Individual Differences Research*, 3, 188–192.
- Griffiths, M. D. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10, 191–197.
- Hebl, M. R., King, E. B. & Lin, J. (2004). The swimsuit becomes us all: Ethnicity, gender, and vulnerability to self-objectification. *Personality and Social Psychology Bulletin*, 30, 1322–1331.
- Ip, E.J., Arnett, M.J., Tenerowicz, M.J. & Perry, P.J. (2011). The anabolic 500 survey: characteristics of male users versus nonusers of anabolic-androgenic steroids for strength training. *Pharmacotherapy* 31, 757–766, <http://dx.doi.org/10.1592/phco.31.8.757>.
- Jampel, J.D., Murray, S.B., Griffiths, S. & Blashill, A.J. (2016). Self-perceived weight and anabolic steroids misuse among US adolescent boys. *J. Adolesc.*

- Health* 58, 397–402, <http://dx.doi.org/10.1016/j.jadolhealth.2015.10.003>.
- Jones, W. & Morgan, J. (2010). Eating disorders in men: A review of the literature. *Journal of Public Mental Health*, 9, 23–31.
- Kanayama, G., Barry, S., Hudson, J.I., Pope Jr. & H.G. (2006). Body image and attitudes towards male roles in anabolic- androgenic steroids users. *Am. J. Psychol.* 163, 697–703.
- Kanayama, G., Brower, K.J., Wood, R.I., Hudson, J.I. & Pope Jr., H.G. (2009). Anabolic androgenic steroid dependence: an emerging disorder. *Addiction* 104, 1966–1978, <http://dx.doi.org/10.1111/j.1360-0443.2009.02734.x>.
- Kanayama, G., Hudson, J.I., Pope Jr., H.G., 2008. Long-term psychiatric and medical consequences of anabolic-androgenic steroid abuse: a looming public health concern? *Drug Alcohol Depend.* 98, 1–12, <http://dx.doi.org/10.1016/j.drugalcdep.2008.05.004>.
- Kanayama, G., Pope Jr., H.G. & Hudson, J. I. (2001). ‘Body image’ drugs: a growing psychosomatic problem. *Psychother. Psychosom.* 70, 61–65, <http://dx.doi.org/10.1159/000056228>.
- Leit, R. A., Gray, J. & Pope, H. G., Jr. (2002). The media’s representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders*, 31, 334–338.
- Leit, R. A., Pope, H. G., Jr. & Gray, J. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders*, 29, 90–93.
- Lorenzen, L., Grieve, F. & Thomas, A. (2004). Exposure to muscular male models decreases men’s body satisfaction. *Sex Roles*, 51, 743–748.
- Maida, D. M. & Armstrong, S. L. (2005). The classification of muscle dysmorphia. *International Journal of Men’s Health*, 4, 73–91.
- Mangweth, B., Pope, H. G., Jr., Kemmler, G., Ebenbichler, C., Hausmann, A., De Col, C., Kreutner, B., Kinzl, J. & Biebl, W. (2001). Body image and psychopathology in male bodybuilders. *Psychotherapy and Psychosomatics*, 70, 38–43.
- Maples, J., Collins, B., Miller, J. D., Fischer, S. & Seibert, A. (2011). Differences between grandiose and vulnerable narcissism and bulimic symptoms in young women. *Eating Behaviors*, 12, 83–85. <https://doi.org/10.1016/j.eatbeh.2010.10.001>
- McCabe, M. P. & Ricciardelli, L. A. (2004). Weight and Shape Concerns of Boys and Men. Field, C. B. & Barros, V. R. (Eds.). (2014). *Climate change 2014–Impacts, adaptation and vulnerability: Regional aspects*. Cambridge University Press.
- McCreary, D.R., Hildebrandt, T.B., Heinberg, L.J., Boroughs, M. & Thompson,

- J.K., (2007). A review of body image influences on men's fitness goals and supplement use. *Am. J. Mens Health* 1, 307–316, <http://dx.doi.org/10.1177/1557988306309408>.
- Miller, J. D. & Campbell, W. K. (2008). Comparing clinical and social-personality conceptualizations of narcissism. *Journal of Personality*, 76, 449–476. <https://doi.org/10.1111/j.1467-6494.2008.00492.x>
- Miller, J. D., Hoffman, B. J., Gaughan, E. T., Gentile, B., Maples, J. & Keith Campbell, W. (2011). Grandiose and vulnerable narcissism: A nomological network analysis. *Journal of Personality*, 79, 1013–1042. <https://doi.org/10.1111/j.1467-6494.2010.00711.x>
- Moradi, B., Dirks, D. & Matteson, A. (2005). Roles of sexual objectification experiences and internalization of standards of beauty in eating disorder symptomatology: A test and extension of objectification theory. *Journal of Counseling Psychology*, 52, 420–428.
- Morrison, T., Morrison, M. & Hopkins, C. (2003). Striving for bodily perfection? An exploration of the drive for muscularity in Canadian men. *Psychology of Men and Masculinity*, 4, 111–120.
- Mosley, P. E. (2009). Bigorexia: Bodybuilding and muscle dysmorphia. *European Eating Disorders Review*, 17, 191–198.
- Murray, S. B., Maguire, S., Russell, J. & Touyz, S. W. (2012). The emotional regulatory features of bulimic episodes and compulsive exercise in muscle dysmorphia: A case report. *European Eating Disorders Review*, 20, 68–73. <https://doi.org/10.1002/erv.1088>
- Murray, S. B., Rieger, E., Touyz, S. W. & De la Garza Garcia, Y. (2010). Muscle dysmorphia and the DSM-V conundrum: Where does it belong? *International Journal of Eating Disorders*, 43, 483–491.
- Murray, S. B., Rieger, E., Touyz, S. W. & De la Garza García, Lic, Y. (2010). Muscle dysmorphia and the DSM-V conundrum: Where does it belong? A review paper. *International Journal of Eating Disorders*, 43, 483–491.
- Olivardia, R., Pope, H. G., Jr., Mangweth, B. & Hudson, J. I. (1995). Eating disorders in college men. *American Journal of Psychiatry*, 152, 1279–1285.
- Parent, M.C. & Moradi, B. (2011). His biceps become him: a test of objectification theory's application to drive for muscularity and propensity for steroid use in college men. *J. Couns. Psychol.* 58, 246–256, <http://dx.doi.org/10.1037/a0021398>.
- Parkinson, A.B. & Evans, N.A. (2006). Anabolic androgenic steroids: a survey of 500 users. *Med. Sci. Sport Exer.* 38, 644–651.
- Pope Jr., H.G., Kanayama, G., Athey, A., Ryan, E., Hudson, J.I. & Baggish, A. (2014). The lifetime prevalence of anabolic-androgenic steroid use and

- dependence in Americans: current estimates. *Am. J. Addiction* 23, 371–373, <http://dx.doi.org/10.1111/j.1521-0391.2013.12118x>.
- Pope Jr., H.G.H., Kanayama, G. & Hudson, J.I. (2012). Risk factors for illicit anabolic-androgenic steroid use in male weightlifters: a cross-sectional cohort study. *Biol. Psychiatry* 71, 254–261, <http://dx.doi.org/10.1016/j.biopsych.2011.06.024>.
- Pope, C. G., Pope, H. G., Menard, W., Fay, C., Olivardia, R. & Phillips, K. A. (2005). Clinical features of muscle dysmorphia among males with body dysmorphic disorder. *Body image*, 2, 395–400.
- Pope, H. G., Jr., Gruber, A. J., Choi, P., Olivardia, R. & Phillips, K. A. (1997). Muscle dysmorphia. An underrecognised form of body dysmorphic disorder. *Psychosomatics*, 38, 548–557.
- Pope, H. G., Jr., Katz, D. L. & Hudson, J. I. (1993). Anorexia nervosa and “reverse anorexia” among 108 male body- builders. *Comprehensive Psychiatry*, 34, 406–409.
- Ridgeway, R. & Tylka, T. (2005). College men’s perceptions of ideal body composition and shape. *Psychology of Men and Masculinity*, 6, 209–220.
- Roberts, T. A. & Fredrickson, B. L. (1997). Objectification theory. *Psychology of women quarterly*, 21, 173–206.
- Schooler, D. & Ward, L. M. (2006). Average Joes: Men’s relationships with media, real bodies, and sexuality. *Psychology of Men and Masculinity*, 7, 27–41.
- Strelan, P. & Hargreaves, D. (2005). Reasons for exercise and body esteem: Men’s response to self-objectification. *Sex Roles*, 53, 495–503.
- Thiblin, I., Garmo, H., Garle, M., Holmberg, L., Byberg, L. et al., (2015). Anabolic steroids and cardiovascular risk: a national population-based cohort study. *Drug Alcohol Depend.* 152, 87–92, <http://dx.doi.org/10.1016/j.drugalcdep.2015.04.013>.
- Tiggemann, M. & Kuring, J. K. (2004). The role of body objectification in disordered eating and depressed mood. *British Journal of Clinical Psychology*, 43, 299–311.
- Van den Berg, P., Paxton, S.J., Keery, H., Wall, M. & Nuemark-Sztainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image* 4, 257–268, <http://dx.doi.org/10.1016/j.bodyim.2007.04.003>.

Çatışma beyanı: Bu çalışma ile ilgili taraf olabilecek herhangi bir kişi ya da kurum ile finansal ilişkim bulunmadığını dolayısıyla herhangi bir çıkar çatışmasının olmadığını beyan ederim.

Destek ve teşekkür: Çalışmada herhangi bir kurum ya da kuruluştan destek alınmamıştır.